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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,853

05/16/2006

Rudiger Nowak

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EXAMINER

LACLAIR, DARCY D

ART UNIT

PAPER NUMBER

4171

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,853	Applicant(s) NOWAK ET AL.	
	Examiner Darcy D. LaClair	Art Unit 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/16/06, 3/22/07</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

A title which points out and highlights the apparent novelty of the invention (silica as a thixotropic and processing aid) is suggested.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-2 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 7 of U.S. Patent No. US 7,095,929.

Although the conflicting claims are not identical, they are not patentably distinct from

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each other because the instant application describes a genus containing the composition of the conflicting application. Cable gels can function as sealants to keep water out of cables. The composition of '929 contains the polypropylene glycol and polyol, which are used in the formation of the polyurethanes enumerated in the instant application. Polypropylene is also enumerated in claim 1 of the instant application. The filler for the '929 sealant gel is also 1 to 15% of an identically treated silica, with a tamped density from 60 to 160 g/l (significantly overlapping with the instant application's 60 to 200 g/l)

4. This rejection might be overcome by indicating that the resins of the instant application are curing or setting, or in some other way being certain to distinguish them from polymer based gels.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim is dependant on claim 3 which describes only incorporating compacted hydrophobic silica, but not the bulk density of the silica. It is unclear what density of material is needed for comparison. Claim 3 also fails to elucidate any steps to the method other than incorporating silica in resin. There is no basis for comparison of preparation time for the method of claim 3 with the time required

for compacted hydrophobic silica having a compacted bulk density of 50 g/l.

Additionally, it is unclear whether the "time needed to prepare the thixotropic adhesives and sealants" includes the time required to compact the silica, which would add to the net time required. For the purpose of examination, it is assumed that this indicates the time for incorporation of the silica.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gunther et al. (US2002/0037936)

9. Claim 1 requires adhesive and sealant systems based on epoxy and other polymers, containing 1 – 15% wt of compacted hydrophobic, pyrogenic silica. Claim 2 further specifies that the silica should have a bulk density of 60 g/L to 200 g/L. Gunther teaches hydrophobic, pyrogenically produced silica with a tamped density of 55 g/L to 200 g/L. (abs) In Example 2, the silica is incorporated into Araldit M (bisphenol-1-epoxy resin). (par 36)

10. Claims 3 – 5 describe a method for reducing the time needed to prepare a thixotropic composition of 1 – 15% wt of silica in a resin, where the silica has a bulk

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density of 60-200 g/L (claim 2), and where the time needed to prepare the adhesives and sealants is shorter than with compacted silica of a density 50 g/L. Gunther demonstrates an example where silica of 60 g/L and 90 g/L are incorporated into an epoxy resin, indicating that the method is known. (Ex. 2) It is further stated that the dispersibility improves with increasing density of silica, particularly for the compacted silica designated R812. (par 30) This would reduce the time needed to prepare the adhesive or sealant composition. Because the silica used are tamped to either 60 g/L or 90 g/L and the dispersibility increases with increasing density, these two example compositions would need less time for dispersion to occur than a silica of 50 g/L, meeting the limitation of Claim 5.

11. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartmann et al. (US 5,959,005)

12. Hartmann describes tapped (compacted) silica produced by flame hydrolysis and treated with hexamethyldisilazane. (col 1 line 40-50) This silane compound would generate hydrophobic silica as described by the instant application. Hartmann later indicates that high filler content only succeeds with hydrophobing of the silica, confirming that the silica of the invention is, in fact, hydrophobic. The tamped density of this silica is 50-300 g/L (Table 1 or Claim 1). The bulk density range completely encompasses applicant's range. Hartmann describes the utility of this silica in producing low-viscosity polymer systems, and describes 1- and 2-component peroxide condensation- and addition-crosslinking silicon rubber systems, adhesives, molding

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compounds, jointing compounds, paints, cable gels, liquid plastic systems, and reaction resins. This enumeration significantly overlaps with the extensive list of applicant's claim 1. Applicant's list is extensive enough that it largely describes polymeric resins compatible with hydrophobic filler, and suggests that none of the specific resins of applicant's lists are specifically preferred, but rather the silica described could be applied to any appropriate resin.

13. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer et al. (US 2002/0077388)

14. Meyer teaches functionalized, structurally modified silica with silyl groups on the surface, which are highly hydrophobic. After being treated to modify the surface, the silica is destructured (compacted). (abstract) The tamped density of the silica ranges from 50 to 400 g/L. (Table after par 6) Meyer demonstrates in experiment 1 and experiment 2 that the silica is stirred into either ethoxylated pentaerythritetraacrylate or epoxyacrylate. Myer indicates in Table 2 (pg 3) that the viscosity of the binder + silica is significantly reduced (10-50 fold reduction) in both cases when the silica has been pretreated to give it a compacted, hydrophobic nature. This significant reduction in viscosity presents a method which would reduce the amount of stirring necessary to cause the silica to become well dispersed in the composition. Because Meyer's range tamped density range is from 50-400 g/L, the inherent improvement in incorporation time would be equal to or shorter than the incorporation time for silica with a density of 50 g/L.

15. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Adams et al. (US 6,156,285)

16. Adams teaches a method for densifying particulate silica and compounding a curable silicone composition comprising the silica. (abs) Adams describes a silica which has a bulk density of 64 kg/m³ (g/L) after densification, preferably 80 kg/m³ to 160 kg/m³, which has been treated to make it hydrophobic. (col 4 line 38-50) Adams indicates that the amount of particulate silica may be between 1 and 70% of the weight of the composition, which encompasses applicant's range. (col 4 line 63-65) In table 2, Adams demonstrates the plateau stress, an indicator of viscosity, in 4 compositions with varying silica density (or compaction). In the case of higher compaction, the Plateau stress values were reduced (factor of 2), demonstrating that compaction will decrease the viscosity of a composition. (col 8 Table 2) This would improve the incorporation of the silica, and therefore compaction would inherently be a method to reduce incorporation time. Because Adams presents as the inventive concept silica with a bulk density of greater than 65 g/L, these would necessarily meet the limitation of claim 5.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann et al. (US5,959,005)

19. Hartmann describes a tamped (compacted) silica produced by flame hydrolysis and treated with hexamethyldisilazane. (col 1 line 40-50) This silane compound would generate a hydrophobic silica as described by the instant application. The tamped density of this silica is 50-300 g/L (Table 1 or Claim 1) completely encompassing the range of applicant's claim 4. Hartmann describes the utility of this silica in producing low-viscosity polymer systems, and describes a variety of acceptable polymer systems. Hartmann indicates that high filler content only succeeds in hydrophobing of the silica, which is one object of the invention. This increased ability to load the filler into the resin composition would be a direct result of improved wetting and incorporation, which would inherently yield easier incorporation and reduced incorporation times per silica incorporated. Generating and utilizing the hydrophobic silica of Hartmann's invention would constitute a method for reducing the time to incorporate silica in a composition and therefore to generate an adhesive or sealant composition. In Hartmann's disclosure, the tamped density range of 50-300 g/L suggests that the inherent improvement in incorporation time would be equal to or shorter than the incorporation time for a silica with a density of 50 g/L.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

21. Nowak et al. (US2001/0047047), which describes gel compositions based on reaction products of polyols and polyisocyanates (or polyurethanes) containing at least one pyrogenically produced oxide of a metal or metalloid, which includes hydrophilic silica, specifically Aerosil R202, R805, R812, and R812S, consistent with the silica used in the instant application. The application fails to teach a tamping or compression step, however this step to improve processability and composition quality is well known in previously cited art.

22. Zwecker et al. (US 5,132,343) describes a stable, low-evaporation unsaturated polyester resin which additionally contains styrene as well as both hydrophilic and hydrophobic pyrogenic silica. Zwecker fails to explicitly teach compaction, however this step is well known in previously cited art.

23. Barnett et al. (US 5,447,968) describes a polyurethane binder system which contains thixotropic agents to impart variable viscosity, preferably hydrophobic fumed silica. The silica is rendered hydrophobic by treatment with a silane.

24. Lagarde et al. (US 4,704,425) describes improved silica particulates for use in curable organosilic polymers and other elastomers. These particulates are precipitated rather than generated by pyrogenic means. Lagarde indicates that it is known in the

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prior art to treat hydrophilic silica to generate a hydrophobic filler. Lagarde also describes the use of a Jet-O-Mizer or other apparatus to micronize the silica.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Thursday 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4171

Darcy D. LaClair
Examiner
Art Unit 4171

/DDL/